March 27, 1934. R. J. MacDONALD 1,952,931

PULPWOOD ROSSER

Filed Sept. 29, 1932 2 Sheets-Sheet 1

Fig. 1.

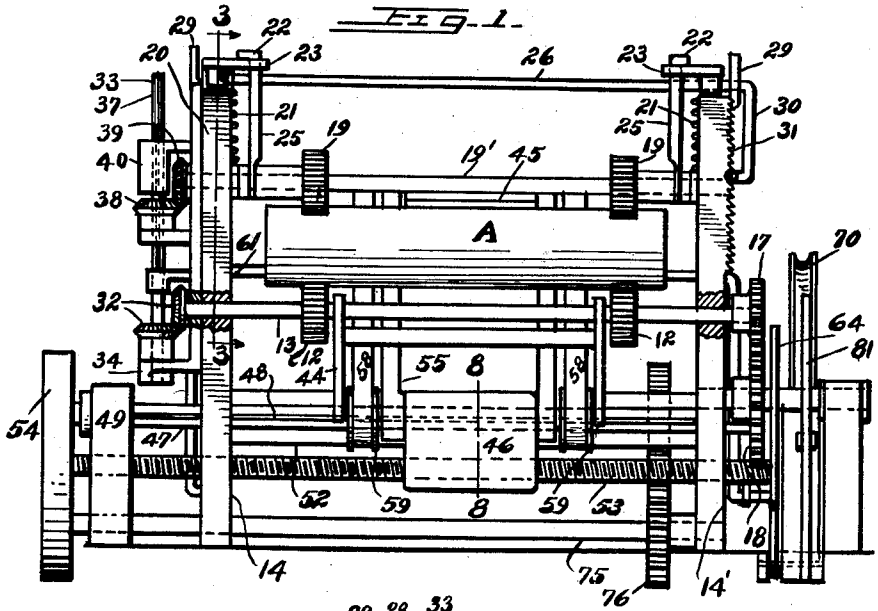


Fig. 2.

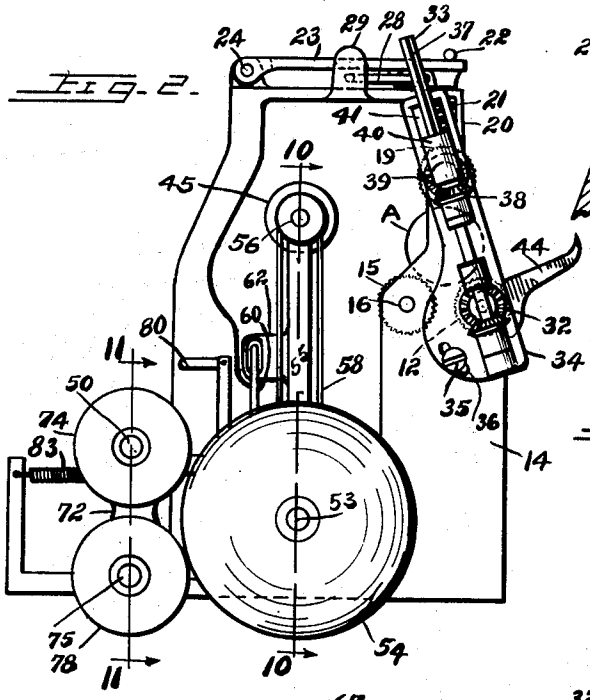


Fig. 3.

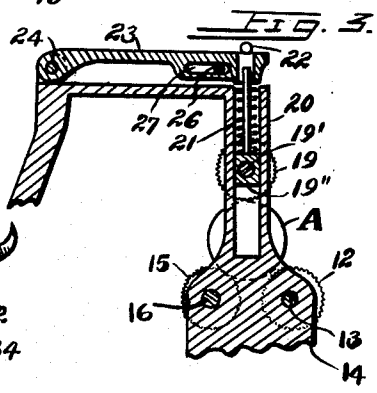


Fig. 4.

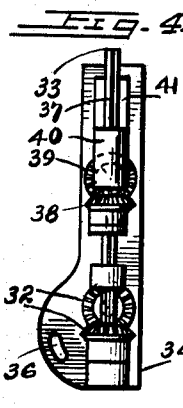


Fig. 5.

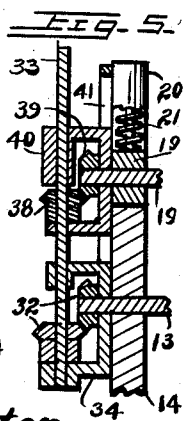
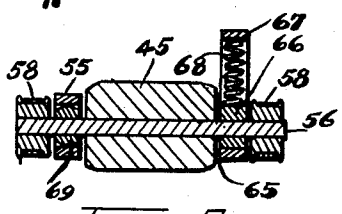


Fig. 6.



Inventor
Robert James MacDonald
By Frederick C. Bromley
Attorney.

March 27, 1934. R. J. MacDONALD 1,952,931

PULPWOOD ROSSER

Filed Sept. 29, 1932 2 Sheets-Sheet 2

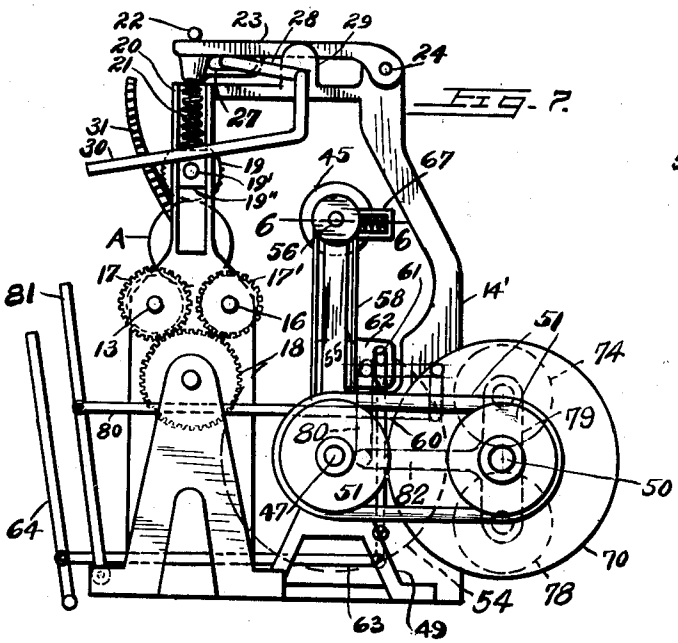


Fig. 7.

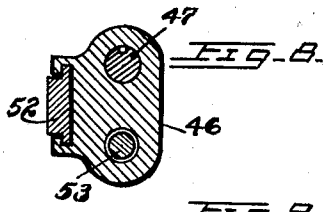


Fig. 8.

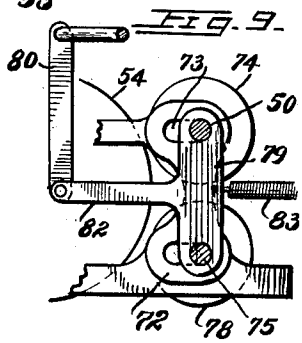


Fig. 9.

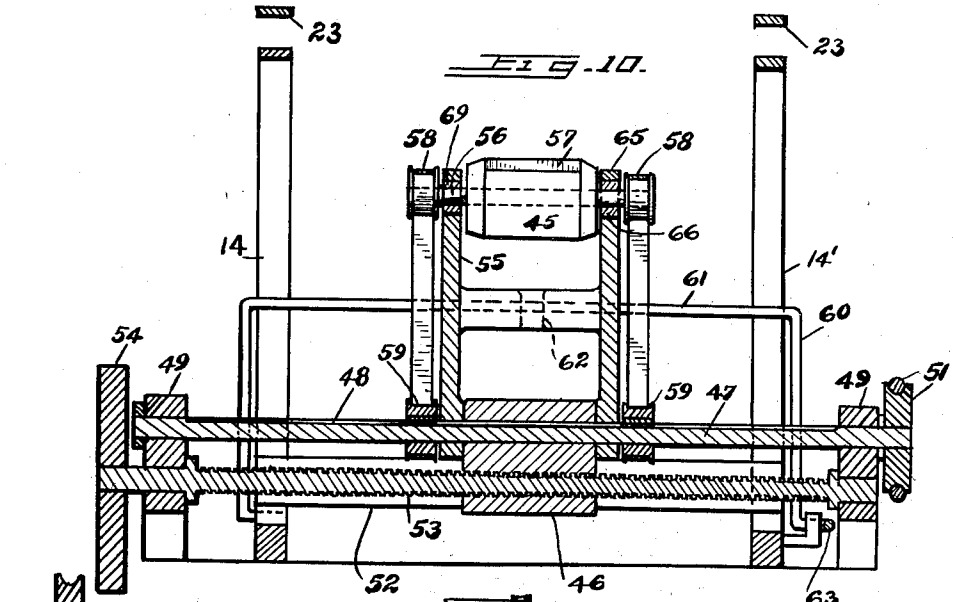


Fig. 10.

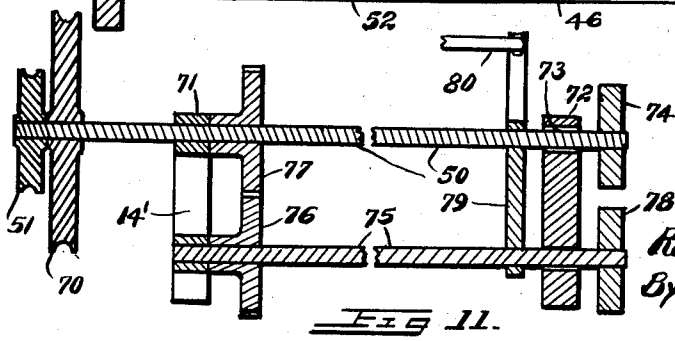


Fig. 11.

Inventor
Robert James MacDonald
By Frederick E. Bromley
Attorney

Patented Mar. 27, 1934

1,952,931

UNITED STATES PATENT OFFICE

1,952,931

PULPWOOD ROSSER

Robert James MacDonald, St. Stephen, New Brunswick, Canada, assignor of one-third to Edward J. Corrigan, Calais, Maine

Application September 29, 1932, Serial No. 635,308

4 Claims. (Cl. 144—208)

The invention relates to improvements in pulpwood rossers as described in the present specification and shown in the accompanying drawings that form part of the same.

The object of the invention is to produce a highly efficient and serviceable machine for rossing pulpwood; one in which pulpwood can be handled expeditiously by only one attendant, the controls being conveniently located for this purpose.

A distinctive feature of the invention resides in the special construction of the cutter head whereby it automatically follows the irregularities of the log surface so as to only remove the bark. Other features of the invention will be apparent as the description of the machine is more fully recounted.

Referring to the accompanying drawings, Figure 1 is a general front elevation of the machine showing a log positioned therein.

Figure 2 is a left end view thereof.

Figure 3 is a fragmentary section of the machine frame taken on line 3—3 of Figure 1 and illustrating the manner in which resilient pressure is applied on the log to hold it in place.

Figure 4 is a detail of a bracket and gearing by which an upper set of rollers rotate in unison with lower sets of rollers.

Figure 5 is a vertical section through the bracket shown in Figure 4.

Figure 6 is a horizontal section taken on the line 6—6 of Figure 7.

Figure 7 is right-hand end view of Figure 1.

Figure 8 is a section taken on line 8—8 of Figure 1.

Figure 9 is a detail of a reverse gearing.

Figure 10 is a vertical sectional view taken on the line 10—10 of Figure 2.

Figure 11 is a further vertical sectional view of Figure 2 but taken on line 11—11 thereof to depict the reverse gearing shown in elevation in Figure 9.

Like numerals of reference indicate corresponding parts in each figure throughout the drawings of the machine.

In the drawings the reference character A denotes a pulpwood log positioned in the machine and occupying a horizontal disposition. The log is supported upon two sets of lower rolls and is engaged by a upper set, forming therewith a triangular holding arrangement that secures the log while it is rossed and yet allows of its being turned to bring its entire periphery into contact with the cutting tool as later detailed. The rollers have knurled faces for engaging the work and the front set 12 of the lower rolls are fixed upon a horizontal shaft 13 journalled in the standards 14, 14' of the frame, which frame is of a suitable design to accommodate the various operating parts.

The rear set 15 of the lower rolls are fixed upon a similar shaft 16 likewise journalled in said standards. The shafts 13 and 16 turn in unison by means of the spur gears 17, 17' attached to the righthand ends thereof and meshed with the idler 18, best discernible in Figure 7. This idler may be driven by a pulley on its shaft or in any other suitable manner common to the art.

The upper set of rolls 19, are fixed to a shaft 19' journalled in blocks 19'' slidably disposed in vertical guideways 20 of the frame. Compression springs 21 are lodged in said guideways, one end of each spring being seated against the respective block and the other end being seated against the free end of an arm 23 of which there are a pair. These arms extend rearwardly and are hinged to the standards at 24. Each arm has a vertical rod 25 fitted in a hole therein and connected with the shaft 19' so as to limit the movement of the arms away from this shaft. The rods have heads 22 to preclude their coming out of the openings in the arms. The heads are formed by bending over the upper ends of the rods so as to furnish enlargements.

Extending transversely of the arms is a shifter bar 26 loosely fitted in slots 27 therein and having its ends 28 bent at right angles and pivoted in lugs 29 integral with the standards, as illustrated in Fig. 7. The right-hand end of the shifter has a lever 30 integral or secured thereto and engageable with the teeth of a rack 31 integral with or rigidly secured to the standard 14' of the frame.

Accordingly, this lever is manually shiftable to lower or raise the upper rolls. As the lever is raised the shifter bar elevates the arms on their pivots which in turn pull up on the rods 25 and thus raise the shaft 19' upon which the upper rolls are carried. As the lever is lowered the springs 21 force the shaft 19' down so as to cause the upper rolls to engage the log A. The lever engages the rack to retain these rollers in this position and the springs accommodate unevenness of the log's rotundity.

The upper set of rolls are geared to the front lower set in order to turn in unison therewith. This is achieved by a pair of miter gears 32, one of which is made fast to a shaft 33 that bisects the upper shaft 19' and is journalled in a bracket 34 swingable about the shaft 13 and secured to the standard 14 by a screw 35 in an arcuate slot

36 (see particularly Figures 4 and 5). This shaft has a keyway 37 running substantially its entire length and carries a sliding miter 38 keyed in this keyway and meshed with a similar gear 39 keyed to the shaft 19' of the upper rolls 19. A bearing 40 holds these gears in mesh and aids in supporting the shaft 33, which bearing is slidably disposed in the bracket 34 by means of the slot 41. By this arrangement the gearing turns the upper rolls in unison with the lower rolls; and whereas these rolls are not shown as power operated, it is understood that they may be so operated by connection with the power take off. This obviously does not require invention. It may be here remarked that if so desired some form of table as at 44 may be employed in front of the rolls to sustain logs before or after rossing.

The cutter head 45 is disposed to the rear of the log holding mechanism and comprises a carriage 46 slidably mounted upon a shaft 47 having a continuous keyway 48 therein and journalled in bearings 49 of the frame. This shaft is driven from the main drive shaft 50 by a suitable connection such as the pulleys and belt 51. The carriage is slidably mounted upon a guideway 52 borne by the frame, and is threadedly engaged with a feed screw 53 extending parallel to the shaft 47 journalled in said bearings 49 and provided with a large friction wheel 54.

Forming a part of the carriage is a swinging frame 55 having members straddling the carriage and freely mounted on the shaft 47 so as to slide therealong with the carriage, but also being capable of swinging to and away from the work. The upper end of this swinging frame has a stub shaft 56 journalled therein and fixed to the cutter head 45 that carries the cutting knife or knives 57. The shaft preferably has a pulley at each end over which belts 58 are trained so as to form a driving connection with pulleys 59 mounted upon the shaft 47 and keyed in the keyway 48 so as to slide along this shaft.

It will be understood that when the feed screw 53 is rotated by the friction wheel 54 the carriage is fed along the guideway 52 according to the direction in which the screw is turned. The rotation of the shaft 47 drives the cutter head so that the knife element may ross the log when brought into contact therewith, the cutter traversing the log by means of the feed screw.

To shift the cutter head in and out of engagement with the work a substantially U-shaped rod 60 has its crosspiece 61 loosely fitted in a loop 62 integral with the swinging frame 55 and its ends pivoted in the standards. One of these ends however is extended below the pivot and connected by a bar 63 to a hand lever 64 by which the frame 55 is controlled.

To accommodate unevenness in the log surface, one of the bearings, as at 65, of the stub shaft 56 is in the form of a block 66, Figure 6, fitted in a guideway 67 integral with the frame 55 and urged into normal position by a spring 68. The other bearing 69 is also in block form but merely rocks in the swinging frame 55. This bearing block has a truncated spherical surface which enables it to have universal angular movement in the frame so as to permit the shaft 56 to have angular movement with respect to the work.

The main driving shaft 50 has a pulley 70 for taking off power from a suitable source, and is journalled in bearings 71 and 72. The bearing 72 remote from the pulley has a slot 73 for its journal whereby the shaft is free to shift to and away from the large friction wheel 54; which shaft has a small friction wheel 74. Below this main shaft is a countershaft 75 likewise journalled in the bearings 71 and 72, the latter being also slotted. The countershaft 75 is supplied with a gear 76 in mesh with a gear 77 on the main shaft in order to be driven in the opposite direction. This shaft carries a small friction wheel 78. A shifter 79 is attached to the main shaft and the countershaft adjacent to the slotted bearings. This shifter is connected by link mechanism 80 to a hand lever 81 which upon being shifted in one direction presses downwardly on the shifter member 82 throwing the countershaft to the rear of its slot and the main shaft toward the front of its slot so as to engage the friction wheel 74 with the wheel 54. Both the main shaft and the countershaft are loosely disposed in their respective slots and are free to move lengthwise thereof. The shafts are a running fit in the shifter 79 which forms a connection between them. Since the link mechanism 80 is pivotally connected at right angles to the shifter member 82 and at a point removed from the shifter it must apply a turning force on the shifter tending to shift one shaft toward the friction wheel 54 and the other away from it. Consequently a downward force on the member 82 must throw the main shaft toward the friction wheel 54 so as to engage it and at the same time the other shaft is thrown in the opposite direction and is limited by the end of the slot, which serves as a fulcrum. Upon shifting this lever in the opposite direction the main shaft is thrown back and the countershaft forward to engage the wheel 78 with the wheel 54. This reverses the feed of the screw so as to change the direction of movement of the cutter as it comes to the end of the log. The friction wheels 74, 78 are normally held free of the wheel 54 by the spring 83.

What I claim is:—

1. A pulpwood rosser comprising a frame, a power operated cutter mechanism borne thereby and adapted to be shifted to and away from a log, mechanism for horizontally supporting and rotating a log in the frame, said mechanism consisting of a horizontal shaft mounted for vertical movement, compression springs for applying pressure upon the shaft, arms pivoted to the frame and engaged at their free ends with said springs, rods connected with the shaft and slidably fitted in the arms to limit their movement away from the shaft, a lever-operated structure for elevating the arms in unison, and means for securing said lever-operated structure in position.

2. A pulpwood rosser comprising a frame, a power operated cutter mechanism borne thereby and adapted to be shifted to and away from a log, mechanism for horizontally supporting and rotating a log in the frame, said mechanism consisting of rolls resiliently urged into engagement with the log, arms pivoted in the frame and connected to the rolls, slots therein, a substantially U-shaped shifter having its ends pivoted in the frame and its crosspiece engaged in said slots, a hand lever connected to one of said shifter ends for actuating the shifter, and a rack for securing the lever against movement in one direction.

3. A pulpwood rosser comprising a frame, a power operated cutter mechanism borne thereby and adapted to be shifted to and away from a log, horizontal shafts journalled in the frame at least one of which is driven by a source of power, rolls affixed thereto for holding a log, one of said shafts

being guided in the frame for movement to and away from the other shafts, mechanism connecting this shaft with one of the non-shiftable shafts to operate the rolls thereof in unison, said mechanism consisting of a bracket swingable about the non-shiftable shaft, a pair of meshing miter gears therein, one of which is fixed to the non-shiftable shaft, a stub shaft journalled in the bracket and fixed to the other miter gear, said shaft having a lengthwise keyway, a miter gear fixed to the movable shaft, a similar gear slidably keyed to the stub shaft, and a bearing supporting the stub shaft for controlling the movement of the slidable miter gear therealong.

4. A pulpwood rosser comprising a frame, roller mechanism for holding and rotating a log therein, a power operated rossing mechanism embracing a carriage adapted to be fed lengthwise of a log, a swinging frame journalled for swinging movement to and away from the log and shiftable therealong by means of the carriage, a stub shaft journalled in a pair of bearings in the frame, one of said bearings being composed of a block fitted in a guideway and resiliently urged into normal position by a spring, and the other bearing being composed of a bearing having a spherical surface by which it rocks in the frame to accommodate itself to the movement of its companion.

ROBERT JAMES MacDONALD.